Sullivan, E. M.
1948

Children's evaluation of the difficulty of disliked school subjects

BOSTON UNIVERSITY
SCHOOL OF EDUCATION
LIBRARY
Ed.
Thesis
Sullivan, E.M.
1948
The Gift of Esther M. Sullivan

Ed
Thesis
Sullivan E.M
1948
Stored

BOSTON UNIVERSITY

SCHOOL OF EDUCATION

CHILDREN'S EVALUATION OF THE DIFFICULTY OF DISLIKED SCHOOL SUBJECTS

A Phase of the Research Project

Subject Preferences of Fifth-Grade Children

Submitted by

Esther Marion Sullivan

(B.S. in Ed., State Teachers College, Bridgewater, 1935)

In Partial Fulfillment

of the Requirements for the Degree

Master of Education

August 1948

Boston University
School of Education
Library

School of Education
Gift of E.M. Sullivan.
August 18, 1948
29914

First reader: W. Linwood Chase, Professor of Education

Second reader: William C. Kvaraceus, Associate Professor of Education

Third reader: Helen A. Murphy, Associate Professor of Education

Digitized by the Internet Archive
in 2015

https://archive.org/details/childrensevaluat00sull

Subject Preferences of Fifth Grade Children

"Subject Preferences of Fifth Grade Children" is a cooperative study in which a number of graduate students have contributed to the total research project. It was facilitated through the cooperation of the New England School Development Council. This thesis is one of the studies in the project. Those completed and filed as graduate studies in June and August, 1948 were:

1. Subject Preferences in the Fifth Grade by Helen C. Blanchard
2. The Reliability of the Check List Used in the Study by Francis L. Thompson
3. An Analysis of Sex Differences in Fifth-Grade Children's Preferences for School Subjects by Eleanor M. Skahill
4. Preferences for Content, Skills, and Aesthetic Subjects in Five Communities by Ado Commito
5. Children's Evaluation of the Difficulty of Well-Liked School Subjects by Katherine M. Kinsley
6. Children's Evaluation of the Difficulty of Disliked School Subjects by Esther M. Sullivan
7. An Analysis of Fifth-Grade Pupils' Subject Preferences in Relation to Their Teachers' Preferences by Helen M. Sprague
8. High Morale Classrooms in the Subject Preference Study by George H. Englesby
9. An Analysis of the Influences of Intelligence and Age Differences Upon Fifth-Grade Children's Preferences for School Subjects by William L. Earley, Jr.

10. An Analysis of the Influence of Achievement on Preference for Reading and Arithmetic by Mary E. Cusack

11. Differences in Subject Preferences of High-Achievement Readers and Low-Achievement Readers by George H. Gardner

12. An Analysis of the Subject Preferences of 3,403 Third, Fourth, Fifth, and Sixth Grade Pupils in the Public Schools of Quincy, Massachusetts by Francis D. Mills

13. Techniques and Practices Used in Twenty Social Studies Classrooms by William A. Wolffer

CHILDREN'S EVALUATION OF THE DIFFICULTY OF DISLIKED SCHOOL SUBJECTS

"Children are not likely to profit greatly from school activities in which they are not interested, or which they actively dislike."[1] The aim in the present study has been four-fold: to find (1) the subjects most disliked, (2) whether the subjects most disliked are considered easy or hard, (3) whether there are significant sex differences in dislikes, and (4) whether there are differences between boys and girls as to the difficulty of the disliked subjects.

There are few or no previous studies of a similar nature to the present one. That the subject has had attention previously, however, is shown by the following:

Witty and Lehman reported in 1929, on a questionnaire checked by over 6,000 children, aged 8½ to 17½, in Topeka, Kansas, in which an attempt was made to find the best-liked of over two hundred occupations. This material was not statistically treated, and the conclusion was, "It is evident that the girls have a stronger liking for school activities in general than do the boys."[2]

---

1 Ethel E. Holmes, "School Subjects Preferred by Children", Department of Elementary School Principals, Sixteenth Yearbook, Washington, D.C., N.E.A. 1947, p. 344.

2 Paul A. Witty and Harvey C. Lehman, "Some Suggestive Results Regarding Sex Differences in Attitude Toward School Work", Education, Vol. XLIX, Apr., 1929, p. 453.

Statement Concerning the Use of Intellectual Property

Author Statement

Publishers may not limit or prevent certain free general use of intellectual property, as doing so would prohibit or unduly deny or restrict [unreadable]. The use of the material falls into three categories: (1) the protected work qualifies, (2) [unreadable] the protected work qualifies the conditions set forth by law, (3) [unreadable] under the circumstances in which [unreadable], and (4) material which the [unreadable] [unreadable] [unreadable] [unreadable] [unreadable].

There are [illegible] [illegible] [illegible]

Holmes reports, in 1937, on 808 children in grades 2 through 6, on a study called "School Subjects Preferred by Children." This material was not treated statistically, but the conclusions point a trend which gives rise to thought when compared with the present study. She says, "That Language was placed so low in the list was an occasion for grief among the teachers.....It also ranks low among the subjects liked least, indicating an attitude of indifference on the part of the children.....The subject receiving the most negative votes is Social Science."[3]

"Whatever may be the reason, the low place of Social Studies among the subjects liked best, and its high place among the subjects liked least, gives us something to think about."[4]

The following table from the Holmes study may be compared with Table II in the present study.

TABLE II (HOLMES STUDY)[5]
FIRST CHOICES BY GRADE OF SUBJECTS LIKED LEAST BY PUPILS

Subject	V A		V B		All Grades	
	No.	Rank	No.	Rank	No.	Rank
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Social Science	30	1	23	1	140	1
Music	13	4.5	21	2	133	2

3 Op. cit., p. 339.

4 Ibid., p. 337.

Analysis	T.S.			T.S.			All Models	
	Obs.	Model	Obs.	Model	Obs.	Model	Obs.	Model
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Model Options	Yr	1	Yr	1	Yr	1	Yr	1
Ratio	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

5 Cor. Rev. . . Cor.

6 [illegible] . . Cor.

TABLE II (HOLMES STUDY)[5]
(concluded)

Subject	V A		V B		All Grades	
	No.	Rank	No.	Rank	No.	Rank
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Spelling	13	4.5	13	5	94	3
Arithmetic	16	2	15	4	92	4
Penmanship	11	7	20	3	82	5
Art	7	8.5	12	6.5	65	6
Reading	12	6	6	10	59	7
Language	14	3	12	6.5	55	8
Physical Education	2	10	7	8.5	27	9
Elem. Science	7	8.5	7	8.5	23	10
No Choice	8	--	8	--	38	--
Total	133	--	144	--	808	--

The data for the present study were compiled from part of a check-list checked by 13,483 fifth grade pupils in an over-all study on "Subject Preferences of Fifth-Grade Children." The children were asked to check each of the subjects they had in school as to whether they liked it, had no feeling for or against it, or actively disliked it. The present study deals with the subjects which were marked as disliked, and considers their difficulty as expressed by the children's choice of whether they considered a subject easy or hard. Tables I, V, VI, and VII deal with the combined ratings of boys and girls and their relative difficulty. Tables III, IV, VIII, IX, and X consider the differences be-

5 Ibid., p. 340.

TABLE 17 (CONCLUDED) POVERTY
(Continued)

Region	P.C.			P.C.			U.S. Income
	No.	Index	No.	Index	No.	Index	Index
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Rural C	73	4.4	73	3	96	3	
Rural Fla	10	2	10	1	98	1	
Rural Ga	17	3	17	1	98	1	
Rural Ky	9	2.0	12	2.0	89	2	
Rural La	14	2	15	1.5	93	2	
Rural Miss	19	3	19	1.5	94	2	
Rural Tenn	11	2	12	1.5	92	2	
Rural Va	7	1.5	7	1.5	95	2	
SE - Urban	5	10	7	1.5	95	2	
SE - Rural Nonfarm	9	0.9	9	0.8	89	10	
SE - Rural Farm	0	--	0	--	84	--	
Total	140	--	144	--	88%	--	

tween the ratings made by boys and girls. Charts I through VI show in graphic form the significance of the obtained critical ratios.

The data for the study were arranged in a large general purpose work table. This table contained the total recorded dislikes by towns, with separate columns for boys and girls, for DE and DH (meaning Disliked-Easy and Disliked-Hard), and for dislikes when they were a pupil's first, second, or third choice of all school subject preferences, and when not. It was found that the dislikes were relatively few when in the first, second, or third choice column, so the separation was discontinued after Table IV.

From the general purpose table, Tables I, III, and IV were made, showing the percents of dislikes under the headings of Boys, Girls, DE, and DH.

It was decided that the critical ratio of the difference between two percentages would be used as the instrument of analysis for the data. Since, in the present study, it was advantageous to determine the significance of difference in percentages between boys and girls, and between Disliked-Easy and Disliked-Hart, the following formula, where p_1 and p_2 represent the percentages used, was found useful.

$$CR = \frac{p_1 - p2}{SE\ Diff._{p_1\ p2}}$$

$$\frac{\text{in 1912,}}{\text{at 20}}$$

In this formula the SE Diff. $_{p_1-p_2}$ is found thus:

$$\text{SE Diff.}_{p_1-p_2} = \sqrt{\text{SE}_{p_1}^{2} + \text{SE Diff.}_{p_2}^{2}}$$

Tables V, VI, VII, VIII, IX, and X represent the critical ratios found.

Critical ratios of three or more will be considered of statistical significance, since, according to Wert[6], "Whenever this ratio is unity, the chances are 68 in 100 that the difference is too great to be the result of sampling fluctuations; whenever this ratio is two, the chances are 95 out of 100 that the difference is too great to be the result of sampling fluctuations; and whenever the ratio is three or more, it is a practical certainty that the difference is too great to be the result of sampling fluctuations."....Whenever it is a practical certainty that the difference is too great to be attributed to the fluctuations of sampling, the difference is called significant."

Analysis of Data

It is interesting to note that, although there were 13,483 children participating in this survey, there were only 10,266 recorded dislikes, an average of .76 dislike per

---

6 James E. Wert, Educational Statistics, (New York and London: McGraw-Hill Book Co., 1938), p. 145.

child. It is also interesting to record that, although there were 6932 boys and 6551 girls taking part, there were 6373 recorded dislikes for boys, an average of .92 per boy, but only 3893 recorded dislikes per girl, an average of .59 per girl. This tends to bear out the conclusion of Witty and Lehman[7] previously mentioned.

Table I shows the numbers and percentages of the recorded dislikes, broken into DE(Dislike-Easy) and DH(Dislike-Hard). Under the heatings of DE and DH, are shown the numbers of children who disliked the various subjects, separated into columns which show whether their dislikes were one of the three choices, or not. The numbers of pupils who disliked one of their first three choices were negligible.

Table II is a comparison of the totals, from another study in the project, made on the first three choices of subjects, and the present one on dislikes. It is interesting to note that Reading is the most-liked and least-disliked. Similarly, Language is least-liked and most-disliked. History, Science, and Geography have relatively stable positions. Arithmetic is unusual, in that, while it is well liked, it is also second from the lowest in most-disliked subjects, showing strong feeling both ways on the part of children.

---

7 Loc. cit.

[1] Ibid., 110.

TABLE I

NUMBERS AND PERCENTAGES OF SUBJE[illegible] DISLIKES

	DE						DH						COMBINED DE and DH					
	A*	Per Cent	B#	Per Cent	C**	Per Cent	A	Per Cent	B	Per Cent	C	Per Cent	A	Per Cent	B	Per Cent	C	Per Cent
READING	14	15.22	117	4.18	131	4.53	12	9.83	197	2.72	209	2.84	26	12.15	314	3.12	340	3.31
ARITHMETIC	11	11.96	122	4.35	133	4.60	38	31.14	1038	14.32	1076	14.59	49	22.90	1160	11.54	1209	11.78
LANG. (ENG.)	7	7.61	588	20.99	595	20.56	5	4.10	919	12.67	924	12.53	12	5.61	1507	14.99	1519	14.80
PENMANSHIP	3	3.26	454	16.20	457	15.79	2	1.64	725	10.00	727	9.86	5	2.34	1179	11.73	1184	11.53
SPELLING	13	14.13	121	4.32	134	4.63	15	12.30	638	8.80	653	8.86	28	13.08	759	7.55	787	7.67
GEOGRAPHY	3	3.26	166	5.92	169	5.84	14	11.48	767	10.58	781	10.59	17	7.94	933	9.28	950	9.25
HISTORY	2	2.17	153	5.46	155	5.35	5	4.10	540	7.45	545	7.39	7	3.27	693	6.90	700	6.82
SOCIAL STUDIES	5	5.43	98	3.50	103	3.56	4	3.28	438	6.04	442	6.00	9	4.21	536	5.33	545	5.31
ART	11	11.96	126	4.50	137	4.73	7	5.73	469	6.47	476	6.46	18	8.41	595	5.92	613	5.97
MUSIC	17	18.48	303	10.81	320	11.06	9	7.38	784	10.81	793	10.76	26	12.15	1087	10.82	1113	10.84
NATURE SCIENCE	5	5.43	258	9.21	263	9.09	5	4.10	449	6.19	454	6.16	10	4.67	707	7.03	717	6.98
HEALTH	1	1.09	296	10.56	297	10.26	6	4.92	286	3.95	292	3.96	7	3.27	582	5.79	589	5.74
TOTALS	92		2802		2894		122		7250		7372		214		10,052		10,266	

*A -- Number of dislikes when the subject was a first, second, or third choice among subjects best liked

#B -- Number of dislikes when not one of the first three choices among subjects best liked

**C - Total of A and B.

TABLE II
A COMPARISON OF THE RESULTS OBTAINED BY THE
OVER-ALL PREFERENCE STUDY AND DISLIKED SUBJECTS

Over-All Preference Study*			Disliked Subjects#		
Subjects	No. of Pupils	Per Cent	Subjects	No. of Pupils	Per Cent
(1)	(2)	(3)	(4)	(5)	(6)
Reading	7177	17.74	Reading	340	3.31
Arithmetic	6811	16.84	Soc. Studies	545	5.31
Drawing	5875	14.52	Health	589	5.74
Spelling	5356	13.24	Drawing	613	5.97
Music	4594	11.35	History	700	6.82
History	2236	5.53	Science	717	6.98
Science	2086	5.16	Spelling	787	7.67
Soc. Studies	1573	3.89	Geography	950	9.25
Geography	1419	3.51	Music	1113	10.84
Health	1346	3.33	Penmanship	1184	11.53
Penmanship	1338	3.31	Arithmetic	1209	11.78
Language	638	1.58	Language	1519	14.80

*Arranged in Order of Best to Least Liked - First, Second, and Third Choices Combined.

#Arranged in Order of Least to Most Disliked - All Recorded Dislikes.

It is interesting to see by Table IIa how different the order of disliked subjects is for boys than for girls. The subjects given range from most to least disliked.

Table II

Comparison of [illegible] with Similar Statistics

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]

TABLE IIa
SUBJECTS MOST TO LEAST DISLIKED BY BOYS AND GIRLS

Boys	No.	Girls	No.
(1)	(2)	(3)	(4)
Language (English)	1076	Geography	532
Music	923	Arithmetic	526
Penmanship	869	History	486
Arithmetic	683	Language (English)	443
Spelling	578	Science	397
Geography	418	Social Studies	299
Art	368	Art	245
Health	355	Health	234
Science	320	Penmanship	215
History	314	Spelling	209
Social Studies	246	Music	190
Reading	223	Reading	117
Totals	6373		3893

Since there were 6932 boys and 6551 girls in the overall study, it is readily apparent that a larger percentage of boys dislike subjects than girls. Health and Reading are the only two subjects in the same position; Reading being least-disliked, (it was also best-liked), and Health being fifth from least-disliked. Music shows the greatest change, being next to most-disliked with the boys, and next to least-disliked with the girls. Geography, History, and Social Studies are more disliked by the girls, not only on a percentage basis, but by actual votes. Penmanship and Spelling are more disliked by boys. History and Social Studies are

(1)	(2)	(3)	(4)
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]

more disliked by the girls, not only on a percentage basis, but by actual votes. Penmanship and Spelling are more disliked by boys. History and Social Studies are in the interesting positions of next to least disliked by the boys. Here is food for thought.

TABLE III

NUMBERS AND PERCENTAGES OF BOYS EXPRESSING DISLIKES OF SUBJECTS

	DE						DH						COMBINED DE and DH					
	A*	Per Cent	B#	Per Cent	C**	Per Cent	A	Per Cent	B	Per Cent	C	Per Cent	A	Per Cent	B	Per Cent	C	Per Cent
READING	7	14.89	74	4.30	81	4.58	10	14.08	132	2.91	142	3.09	17	14.41	206	3.29	223	3.50
ARITHMETIC	6	12.76	74	4.30	80	4.52	18	25.35	585	12.91	603	13.10	24	20.32	659	10.54	683	10.72
LANG. (ENG.)	3	6.38	374	21.70	377	21.30	3	4.22	696	15.36	699	15.19	6	5.08	1070	17.11	1076	16.88
PENMANSHIP	1	2.13	327	18.98	328	18.53	2	2.82	539	11.89	541	11.75	3	2.54	866	13.84	869	13.64
SPELLING	5	10.64	74	4.30	79	4.46	7	9.86	492	10.86	499	10.84	12	10.17	566	9.05	578	9.07
GEOGRAPHY	1	2.13	76	4.41	77	4.35	7	9.86	334	7.37	341	7.41	8	6.78	410	6.55	418	6.56
HISTORY	1	2.13	74	4.30	75	4.24	2	2.82	237	5.23	239	5.19	3	2.54	311	4.97	314	4.93
SOCIAL STUDIES	2	4.26	51	2.96	53	2.99	3	4.23	190	4.19	193	4.19	5	4.24	241	3.85	246	3.86
ART	7	14.89	77	4.46	84	4.75	6	8.45	278	6.13	284	6.17	13	11.02	355	5.68	368	5.77
MUSIC	11	23.40	234	13.58	245	13.84	7	9.86	671	14.81	678	14.73	18	15.25	905	14.47	923	14.48
NATURE SCIENCE	2	4.26	110	6.38	112	6.33	2	2.82	206	4.55	208	4.52	4	3.39	316	5.05	320	5.02
HEALTH	1	2.13	178	10.33	179	10.11	4	5.63	172	3.79	176	3.82	5	4.24	350	5.60	355	5.57
TOTALS	47		1723		1770		71		4532		4603		118		6255		6373	

*A -- Number of dislikes when the subject was a first, second, or third choice among subjects best liked

#B -- Number of dislikes when not one of the first three choices among subjects best liked

**C - Total of A and B

TABLE IV

NUMBERS AND PERCENTAGES OF GIRLS EXPRESSING DISLIKES OF SUBJECTS

	DE						DH						COMBINED DE and DH					
	A*	Per Cent	B#	Per Cent	C**	Per Cent	A	Per Cent	B	Per Cent	C	Per Cent	A	Per Cent	B	Per Cent	C	Per Cent
READING	7	15.56	43	3.99	50	4.45	2	3.92	65	2.39	67	2.42	9	9.38	108	2.85	117	3.01
ARITHMETIC	5	11.11	48	4.45	53	4.72	20	39.22	453	16.67	473	17.08	25	26.04	501	13.20	526	13.51
LANG. (ENG.)	4	8.89	214	19.83	218	19.39	2	3.92	223	8.21	225	8.13	6	6.25	437	11.51	443	11.38
PENMANSHIP	2	4.44	127	11.77	129	11.48	0	--	186	6.84	186	6.72	2	2.08	313	8.24	215	5.52
SPELLING	8	17.78	47	4.36	55	4.89	8	15.69	146	5.37	154	5.56	16	16.67	193	5.08	209	5.37
GEOGRAPHY	2	4.44	90	8.34	92	8.18	7	13.73	433	15.93	440	15.89	9	9.37	523	13.77	532	13.67
HISTORY	1	2.22	79	7.32	80	7.12	3	5.88	303	11.15	306	11.05	4	4.17	382	10.06	486	12.48
SOCIAL STUDIES	3	6.67	47	4.35	50	4.45	1	1.96	248	9.12	249	8.99	4	4.17	295	7.77	299	7.68
ART	4	8.89	49	4.54	53	4.72	1	1.96	191	7.03	192	6.93	5	5.21	240	6.32	245	6.29
MUSIC	6	13.33	69	6.39	75	6.67	2	3.92	113	4.16	115	4.15	8	8.33	182	4.79	190	4.88
NATURE SCIENCE	3	6.67	148	13.72	151	13.43	3	5.88	243	8.94	246	8.89	6	6.25	391	10.30	397	10.20
HEALTH	0	--	118	10.94	118	10.50	2	3.92	114	4.19	116	4.19	2	2.08	232	6.11	234	6.01
TOTALS	45		1079		1124		51		2718		769		96		3797		3893	

*A -- Number of dislikes when the subject was a first, second, or third choice among subjects best liked

#B -- Number of dislikes when not one of the first three choices among subjects best liked

**C - Total of A and B

TABLE V

CRITICAL RATIOS BASED ON DE AGAINST DH FOR COMBINED TOTAL OF 10,266 DISLIKES OF BOYS AND GIRLS

Subject		NO.	Per Cent	SE.	Per Cent Diff.	SE Diff.	CR
Reading	DE	131	4.53	.4	1.69	.4472	3.78
	DH	209	2.84	.2			
Arithmetic	DE	133	4.60	.4	9.99	.5657	17.66
	DH	1076	14.59	.4			
Language (English)	DE	595	20.56	.8	8.03	.8944	8.98
	DH	924	12.53	.4			
Penmanship	DE	457	15.79	.7	5.93	.8062	7.36
	DH	727	9.86	.4			
Spelling	DE	134	4.63	.4	4.23	.50	8.46
	DH	653	8.86	.3			
Geography	DE	169	5.84	.4	4.75	.5657	8.40
	DH	781	10.59	.4			
History	DE	155	5.35	.4	2.04	.50	4.08
	DH	545	7.39	.3			
Soc. Studies	DE	103	3.56	.4	2.44	.50	4.88
	DH	442	6.00	.3			
Art	DE	137	4.73	.4	1.73	.50	3.46
	DH	476	6.46	.3			
Music	DE	320	11.06	.6	.30	.7211	.42
	DH	793	10.76	.4			
Nature Science	DE	263	9.09	.5	2.93	.5831	5.02
	DH	454	6.16	.3			
Health	DE	297	10.26	.6	6.30	.6325	9.96
	DH	292	3.96	.2			

(DE = 2,894; DH = 7,372)

TABLE VI

CRITICAL RATIOS BASED ON DE AGAINST DH FOR BOYS' TOTAL OF 6,373 DISLIKES

Subject		NO.	Per Cent	SE	Per Cent Diff.	SE Diff.	CR
Reading	DE	81	4.58	.5	1.49	.5831	2.56
	DH	142	3.09	.3			
Arithmetic	DE	80	4.52	.5			
	DH	603	13.10	.5	8.58	.7071	12.13
Language (English)	DE	377	21.30	1.0	6.11	1.118	5.46
	DH	699	15.19	.5			
Penmanship	DE	328	18.53	.9	6.78	1.030	6.58
	DH	541	11.75	.5			
Spelling	DE	79	4.46	.5			
	DH	499	10.84	.5	6.38	.7071	9.02
Geography	DE	77	4.35	.5			
	DH	341	7.41	.4	3.06	.6403	4.78
History	DE	75	4.24	.5			
	DH	239	5.19	.3	.95	.5831	1.63
Soc. Studies	DE	53	2.99	.4			
	DH	193	4.19	.3	1.20	.50	2.40
Art	DE	84	4.75	.5			
	DH	284	6.17	.4	1.42	.6403	2.22
Music	DE	245	13.84	.8			
	DH	678	14.73	.5	.89	.9434	.94
Nature Science	DE	112	6.33	.6	1.81	.6708	2.70
	DH	208	4.52	.3			
Health	DE	179	10.11	.7	6.29	.7616	8.26
	DH	176	3.82	.3			

(DE = 1,770; DH = 4,603)

Of the twelve critical ratios found in Table V, eleven are statistically significant. That is the differences found will not be considered the result of sampling fluctuations. Therefore, it may be said that when Reading, Language, Penmanship, Nature or Science, and Health are disliked, they will more often be found easy than hard; and when Arithmetic, Spelling, Geography, History, Social Studies, and Art are disliked, they will more often be found hard than easy.

In Music the percent difference of .30 is not significant. The CR of .42 shows that there are 33 chances in 100 that this is a true difference in favor of the subject being considered easy when disliked.

Of the twelve critical ratios found in Table VI, six are statistically significant. That is, the differences found will not be considered the result of sampling fluctuations. So it may be assumed that when boys dislike Arithmetic, Spelling, or Geography, they will find them more often hard than easy. When they dislike Language or English, Penmanship, and Health, they will find them more often easy than hard.

In Reading, the percent difference of 1.49 is not significant. The CR of 2.56 shows that there are 99 chances in 100 that this is a true difference in favor of Reading, when

of the twelve original verbs listed in Table 1. Three are particularly significant. They in the literature often get the translation the result of emphasizing strategies. Therefore, it may be well more common language, "continue," "start," or "stop," and tackle are quite different, they will here either be found very much part of "attempt," "plan," "manage," "decide," "refuse," and "try" are similar, though all have often so those that have used.

In order the general difference of .50 is not significant. The 50 of .41 means that there are 50 chances in 100 that this is a true difference in favor of the emphasis being counterbalanced only when finished.

Of the twelve original verbs found in Table 1, nine are significantly significant. That is, the difference forms will not be consistent of the result of emphasizing strategies. It is not by chance that more verbs begin with "f" than with any other letter. Even then similar beginning of "finish," "fail," and "forget," that all that time were different. Of "forget," that all that time were other and not.

In reading, the general difference of 1.00 is not significant. The 00 of 1.00 means that there are 0 chances in 100 that this is a true difference in favor of reading, even

disliked, being found easy by the boys.

In Nature or Science, the percent difference of 1.81 is not significant. The CR of 2.70 shows that there are 99 chances in 100 that this is a true difference in favor of Nature or Science being found easy by the boys when it is disliked.

In History, the percent difference of .95 is not significant. The CR of 1.63 shows that there are 90 chances in 100 that this is a true difference in favor of History being found hard by the boys when it is disliked.

In Social Studies, the percent difference of 1.20 is not significant. The CR of 2.40 shows that there are 98 chances in 100 that this is a true difference in favor of Social Studies being found hard by the boys when it is disliked.

In Art, the percent difference of 1.42 is not significant. The CR of 2.22 shows that there are 97 chances in 100 that this is a true difference in favor of Art being found hard by the boys when it is disliked.

Power more of the pipe than it is getting.

Too fine jobs is a true difference in time of wet sweep test. The GE or C-G sweep that shows its tendency to run ahead. The GE or C-G sweep that shows its tendency to run behind.

In fact. The Pennsylvania difference of 1.4% is not significant.

Dental drawing paper fixed to the pole shows it is eccentric.

In dental practice, the pressure difference of 1.4% is not significant. The GE or C-G sweep that shows its tendency to run ahead of the pipe when it is testing.

In dental practice, the pressure difference of 1.4% is a very significant difference. The GE or C-G sweep that shows its tendency to run ahead. The GE or C-G sweep that shows its tendency to run behind.

In effect, the pressure difference of .4% is not significant.

Under a pressure sweep test of the pole when it is testing. The GE or C-G sweep that shows its tendency to run ahead. The GE or C-G sweep that shows its tendency to run behind.

In fact. The Pennsylvania difference of 1.4% is not significant.

In dental practice, the pressure difference of 1.4% is a very significant difference. The GE or C-G sweep that shows its tendency to run ahead of the pipe when it is testing. The GE or C-G sweep that shows its tendency to run behind.

In effect, the pressure difference of .4% is not significant.

Under a pressure sweep test of the pole when it is testing. The GE or C-G sweep that shows its tendency to run ahead. The GE or C-G sweep that shows its tendency to run behind.

In fact. The Pennsylvania difference of 1.4% is not significant.

Dental drawing paper fixed to the pole shows it is eccentric.

In Music, the percent difference of .89 is not significant. The CR of .94 shows that there are 65 chances in 100 that this is a true difference in favor of Music being found hard by the boys when it is disliked.

Of the twelve critical ratios found in Table VII, nine are statistically significant. That is, the differences found will not be considered the result of sampling fluctuations. So, it may be said, that when girls dislike Reading, Language or English, Penmanship, Nature or Science, and Health, they will more often find these subjects easy. On the same basis, when girls dislike Arithmetic, Geography, History, and Social Studies, they will more often find these subjects hard.

In Spelling, the percent difference of .67 is not significant. The CR of .78 shows that there are 56 chances in 100 that this is a true difference in favor of Spelling being found hard when disliked by girls.

In Music, the percent difference of 2.52 is not significant. The CR of 2.82 shows that there are 99 chances in 100 that this is a true difference in favor of Music being found easy when disliked by girls.

In Art, the percent difference of 2.21 is not significant. The CR of 2.57 shows that there are 99 chances in 100 that this is a true difference in favor of Art being found hard when disliked by girls.

TABLE VII

CRITICAL RATIOS BASED ON DE AGAINST DH FOR GIRLS' TOTAL OF 3,893 DISLIKES

Subject		NO.	Per Cent	SE	Per Cent Diff.	SE Diff.	CR
Reading	DE	50	4.45	.6	2.03	.6708	3.03
	DH	67	2.42	.3			
Arithmetic	DE	53	4.72	.7			
	DH	473	17.08	.7	12.36	.990	12.48
Language (English)	DE	218	19.39	1.2	11.26	1.30	8.66
	DH	225	8.13	.5			
Penmanship	DE	129	11.48	.9	4.76	1.030	4.62
	DH	186	8.72	.5			
Spelling	DE	55	4.89	.7			
	DH	154	5.56	.5	.67	.8602	.78
Geography	DE	92	8.18	.8			
	DH	440	15.89	.7	7.71	1.063	7.25
History	DE	80	7.12	.8			
	DH	306	11.05	.6	3.93	1.00	3.93
Soc. Studies	DE	50	4.45	.6			
	DH	249	8.99	.5	4.54	.7810	5.81
Art	DE	53	4.72	.7			
	DH	192	6.93	.5	2.21	.8602	2.57
Music	DE	75	6.67	.8	2.52	.8944	2.82
	DH	115	4.15	.4			
Nature Science	DE	151	13.43	1.0	4.54	1.118	4.06
	DH	246	8.89	.5			
Health	DE	118	10.50	.9	6.31	.9849	6.41
	DH	116	4.19	.4			

(DE = 1,124; DH = 2,769)

Of the twelve critical ratios found in Table VIII, boys versus girls, nine are statistically significant. That is, the differences found will not be considered the result of sampling fluctuations. Therefore, it may be said that when critical ratios based on the combined DE and DH dislikes of boys and girls are compared, those for Language (English), Penmanship, Music, and Spelling are significantly in favor of the boys. Those for Arithmetic, Geography, Nature or Science, History, and Social Studies, are significantly in favor of the girls.

In Reading, the percent difference of .49 is not significant. The CR of 1.36 shows that there are 83 chances in 100 that this is a true difference in favor of Reading being more disliked by the boys.

In Art, the percent difference of .52 is not significant. The CR of 1.04 shows that there are 70 chances in 100 that this is a true difference in favor of Art being more disliked by the girls.

In Health, the percent difference of .44 is not significant. The CR of .88 shows that there are 62 chances in 100 that this is a true difference in favor of Health being more disliked by the girls.

TABLE VIII

CRITICAL RATIOS BASED ON BOYS AGAINST GIRLS FOR SURVEY TOTAL OF 10,266 DISLIKES

Subject		NO.	Per Cent	SE	Per Cent Diff.	SE Diff.	CR
Reading	B	223	3.50	.2	.49	.3606	1.36
	G	117	3.01	.3			
Arithmetic	B	683	10.72	.4	2.79	.7211	3.87
	G	526	13.51	.6			
Language (English)	B	1076	16.88	.5	5.50	.7071	7.78
	G	443	11.38	.5			
Penmanship	B	869	13.64	.4	8.12	.5657	14.35
	G	215	5.52	.4			
Spelling	B	578	9.07	.4	3.70	.50	7.40
	G	209	5.37	.3			
Geography	B	418	6.56	.3	7.11	.6708	10.60
	G	532	13.67	.6			
History	B	314	4.93	.3	7.55	.5831	12.95
	G	486	12.48	.5			
Soc. Studies	B	246	3.86	.2	3.82	.4472	8.54
	G	299	7.68	.4			
Art	B	368	5.77	.3	.52	.50	1.04
	G	245	6.29	.4			
Music	B	923	14.48	.4	9.60	.50	19.20
	G	190	4.88	.3			
Nature Science	B	320	5.02	.3	5.18	.5831	8.88
	G	397	10.20	.5			
Health	B	355	5.57	.3	.44	.50	.88
	G	234	6.01	.4			

(Boys = 6,373; Girls = 3,893)

Of the twelve critical ratios found in Table IX, five are statistically significant. That is, the differences found will not be considered the result of sampling fluctuations. So, it may be said that when critical ratios are found between boys and girls, based on disliked subjects which are found easy, those for Penmanship and Music are significantly in favor of the boys. Those for Geography, History, and Nature or Science are significantly in favor of the girls.

In Reading, the percent difference of .13 is not significant. The CR of .17 shows that there are 14 chances in 100 that this is a true difference in favor of Reading being found easy when disliked by boys more than girls.

In Language (English), the percent difference of 1.91 is not sitnificant. The CR of 1.22 shows that there are 78 chances in 100 that this is a true difference in favor of the boys.

In Art, the percent difference of .03 is not significant. The CR of .04 shows that there are 3 chances in 100 that this is a true difference in favor of the boys.

In Arithmetic, the percent difference of .20 is not significant. The CR of .23 shows that there are 18 chances in 100 that this is a true difference in favor of the girls.

In Spelling, the percent difference of .43 is not sig-

nificant. The CR of .50 shows that there are 38 chances in 100 that this is a true difference in favor of the girls.

In Social Studies, the percent difference of 1.46 is not significant. The CR of 2.02 shows that there are 96 chances in 100 that this is a true difference in favor of the girls.

In Health, the percent difference of .39 is not significant. The CR of .34 shows that there are 27 chances in 100 that this is a true difference in favor of the girls.

TABLE IX

CRITICAL RATIOS BASED ON BOYS AGAINST GIRLS FOR TOTAL DE OF 2,894

Subject		NO.	Per Cent	SE	Per Cent Diff.	SE Diff.	CR
Reading	B	81	4.58	.5	.13	.7810	.17
	G	50	4.45	.6			
Arithmetic	B	80	4.52	.5			
	G	53	4.72	.7	.20	.8602	.23
Language (English)	B	377	21.30	1.0	1.91	1.562	1.22
	G	218	19.39	1.2			
Penmanship	B	328	18.53	.9	7.05	1.273	5.54
	G	129	11.48	.9			
Spelling	B	79	4.46	.5			
	G	55	4.89	.7	.43	.8602	.50
Geography	B	77	4.35	.5			
	G	92	8.18	.8	3.83	.9434	4.06
History	B	75	4.24	.5			
	G	80	7.12	.8	2.88	.9434	3.05
Soc. Studies	B	53	2.99	.4			
	G	50	4.45	.6	1.46	.7211	2.02
Art	B	84	4.75	.5	.03	.8602	.04
	G	53	4.72	.7			
Music	B	245	13.84	.8	7.17	1.131	6.34
	G	75	6.67	.8			
Nature Science	B	112	6.33	.6			
	G	151	13.43	1.0	7.10	1.166	6.09
Health	B	179	10.11	.7			
	G	118	10.50	.9	.39	1.140	.34

(Boys = 1,770; Girls = 1,124)

TABLE 22

[illegible]

[illegible]								
[illegible]								
[illegible]								
[illegible]								

Of the twelve critical ratios found in Table X, nine are statistically significant. That is, the differences found will not be considered the result of sampling fluctuations. Therefore, it may be said that when critical ratios are found between boys and girls, based on disliked subjects which are found hard, those for Language (English), Penmanship, Spelling, and Music are significantly in favor of the boys. Those for Arithmetic, Geography, History, Social Studies, and Nature or Science are significantly in favor of the girls.

In Reading, the percent difference of .67 is not significant. The CR of 1.58 shows that there are 89 chances in 100 that this is a true difference in favor of the boys.

In Art, the percent difference of .76 is not significant. The CR of 1.19 shows that there are 77 chances in 100 that this is a true difference in favor of the girls.

In Health, the percent difference of .37 is not significant. The CR of .74 shows that there are 54 chances in 100 that this is a true difference in favor of the girls.

TABLE X

CRITICAL RATIOS BASED ON BOYS AGAINST GIRLS FOR TOTAL DH OF 7,372

Subject		NO.	Per Cent	SE	Per Cent Diff.	SE Diff.	CR
Reading	B	142	3.09	.3	.67	.4243	1.58
	G	67	2.42	.3			
Arithmetic	B	603	13.10	.5			
	G	473	17.08	.7	3.98	.8602	4.63
Language (English)	B	699	15.19	.6	7.06	.7810	9.04
	G	225	8.13	.5			
Penmanship	B	541	11.75	.5	5.03	.7071	7.11
	G	186	6.72	.5			
Spelling	B	499	10.84	.5	5.28	.7071	7.47
	G	154	5.56	.5			
Geography	B	341	7.41	.4			
	G	440	15.89	.7	8.48	.8062	10.52
History	B	239	5.19	.3			
	G	306	11.05	.6	5.86	.6708	8.74
Soc. Studies	B	193	4.19	.3			
	G	249	8.99	.5	4.80	.5831	8.23
Art	B	284	6.17	.4			
	G	192	6.93	.5	.76	.6403	1.19
Music	B	678	14.73	.6	10.58	.7211	14.67
	G	115	4.15	.4			
Nature Science	B	208	4.52	.3			
	G	246	8.89	.5	4.37	.5831	7.49
Health	B	176	3.82	.3			
	G	116	4.19	.4	.37	.50	.74

(Boys = 4,603; Girls = 2,769)

The charts, I through VI, show in tabular form the summaries of all the critical ratios found in this study of subjects disliked by fifth-grade children and their evaluation of the difficulty of disliked subjects. Since the level of significance chosen for this research was a critical ratio of 3.00 or more, only those critical ratios above that figure have true significance.

CHART I

SUMMARY OF CRITICAL RATIOS BASED ON DE AGAINST DH FOR COMBINED TOTAL OF 10,266 DISLIKES (TABLE V)

CR	DE	DH
3.0 or above	Reading Language (Eng.) Penmanship Science, Nature Health	Arithmetic Spelling Geography History Soc. Studies Art
Below 1.0 and above zero	Music	None
(DE = 2,894; DH = 7,373)		

CHART II

CRITICAL RATIOS BASED ON DE AGAINST DH FOR BOYS' TOTAL OF 6,373 DISLIKES (TABLE VI)

CR	DE	DH
3.0 or above	Language (Eng.) Penmanship Health	Arithmetic Spelling Geography
2.0 to 3.0	Reading Science, Nature	Soc. Studies Art
1.0 to 2.0	None	History
Below 1.0 and above zero	None	Music

(DE = 1,770; DE = 4,603)

CHART III

CRITICAL RATIOS BASED ON DE AGAINST DH FOR GIRLS' TOTAL OF 3,893 DISLIKES (TABLE VII)

CR	DE	DH
3.0 or above	Reading Language (Eng.) Penmanship Science, Nature Health	Arithmetic Geography History Soc. Studies None
2.0 to 3.0	Music	Art
Below 1.0 and above zero	None	Spelling

(DE = 1,124; DH = 2,769)

CHART IV

CRITICAL RATIOS BASED ON BOYS AGAINST GIRLS FOR SURVEY TOTAL OF 10,266 DISLIKES (TABLE VIII)

CR	Boys	Girls
3.0 or above	Language (Eng.) Penmanship Music Spelling None	Arithmetic Geography History Soc. Studies Science, Nature
1.0 to 2.0	Reading	Art
Below 1.0 and above zero	None	Health

(Boys = 6,373; Girls =3,893)

CHART V

CRITICAL RATIOS BASED ON BOYS AGAINST GIRLS FOR TOTAL DE OF 2,894 (TABLE IX)

CR	Boys	Girls
3.0 or above	Penmanship Music None	Geography History Science, Nature
2.0 to 3.0	None	Soc. Studies
1.0 to 2.0	Language (Eng.)	None
Below 1.0 and above zero	Reading Art None	Arithmetic Spelling Health
(Boys = 1,770; Girls = 1,124)		

CHART VI

CRITICAL RATIOS BASED ON BOYS AGAINST GIRLS FOR TOTAL DH OF 7,372 (TABLE X)

CR	Boys	Girls
3.0 or above.	Language (Eng.) Penmanship Spelling Music None	Arithmetic Geography History Soc. Studies Science, Nature
1.0 to 2.0	Reading	Art
Below 1.0 and above zero	None	Health
(Boys = 4,603;	Girls = 2,769)	

Boston University
School of Education
Library

CONCLUSIONS

1. That there is an average of less than one disliked subject per pupil is notable in the light of the fact that cartoonists still picture the child as going unwillingly to school.

2. Judging by the percentages of dislikes recorded, boys dislike school subjects more than girls do.

3. When school subjects are disliked by children, Reading, Language or English, Penmanship, Nature or Science, and Health, are found significantly easy. When disliked, Arithmetic, Spelling, Geography, History, Social Studies, and Art, are found significantly hard. The CR of Music, while not significant, is in favor of its being easy.

4. When school subjects are disliked by boys, Language or English, Penmanship, and Health are found significantly easy. While the CR's of Reading and Nature or Science are not significant, they are in favor of Reading and Nature or Science being found easy. The CR's of Social Studies, Art, History, and Music are in favor of these subjects being found hard. Arithmetic, Spelling, and Geography are significantly hard.

5. When girls dislike subjects, Reading, Language or English, Penmanship, Nature or Science, and Health are

found significantly easy. Arithmetic, Geography, History, and Social Studies are found significantly hard. The CR's, while not significantly so, are in favor of Music being easy, and of Art and Spelling being hard.

6. When the disliked subjects are separated into boys' and girls' choices, boys significantly dislike Language or English, Penmanship, Music and Spelling more than do girls, and the CR is in favor of their disliking Reading more than do girls. Girls significantly dislike Arithmetic, Geography, History, Social Studies, and Nature or Science more than do boys and the CR's are in favor of their disliking Art and Health more than do boys.

SUGGESTIONS FOR FURTHER STUDY

1. The field of Geography, History, and Social Studies might be explored to find reasons for the apparent intense dislikes by both boys and girls.

2. Since Language is greatly disliked, but also found easy by both boys and girls, research might lead to reasons for these results.

3. A study of methods, materials, and backgrounds in the teaching of Music might be undertaken to find reasons for the great number of dislikes expressed by the boys.

4. An interesting study might be made to find the reasons that children have for their dislikes of various subjects.

ey, sure.

BOSTON UNIVERSITY
1 1719 02559 8717